KING COUNTY CONVEYANCE SYSTEM IMPROVEMENT PROJECT

NORTH LAKE WASHINGTON PLANNING AREA

TASK 210 REPORT

PLANNING RECORDS SUMMARY

JANUARY 2004

HDR

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

The King County Wastewater Treatment Division's North Lake Washington Subregional Planning Area covers the 16 sewer service basins in King and Snohomish Counties that are upstream of the Kenmore Interceptor Section 2 ("Kenmore Lakeline") and the York and Hollywood Pump Stations. Besides King County, eleven cities and local sewer districts operate and maintain conveyance pipes and pump stations within this area.

The purpose of this report is to review past and current planning efforts of the County and local agencies that are relevant to the North Lake Washington Planning Area and summarize references used for this review.

GENERAL AREA DESCRIPTION

The North Lake Washington Planning Area contains 51,850 acres (81 sq. miles) of northern King County and southern Snohomish County. The sixteen King County service basins and nine local agencies in the planning area are listed in Table 210-1.

The County provides conveyance of local wastewater within this planning area to either the West Point or South Treatment Plants. Figure 210-1 and 210-2 show the boundaries of King County's service basins, local utilities districts and major facilities and conveyance lines.

Typically, dry weather flow from the planning area is conveyed to the West Point Treatment Plant using the Woodinville and Kenmore Pump Stations and the Kenmore and Bothell/Woodinville Interceptors. During the wet weather months, the York and North Creek Pump Stations are activated to divert wastewater from the North Creek – King, North Creek – Snohomish, Bear Creek – King, East Woodinville, Woodinville – NW, and Cross Valley service basins into the Eastside Interceptor for treatment at the South Treatment Plant in Renton. The purpose of this wet-weather diversion is to minimize flows through the Kenmore Interceptor – Section 2 ("Kenmore Lakeline") and thereby reduce the potential for overflows immediately upstream of the Kenmore Pump Station. Wastewater from the remaining basins downstream of the North Creek Pump Station continues to be conveyed to the West Point plant via the Kenmore Interceptor. Beginning recently, the York Pump Station would also activate to during summer storms to divert flows away from the Kenmore Lakeline.

Table 210-1. Service Basins and Agencies in North Lake Washington Planning Area

King County Service Basins	Local Agency
Swamp Creek – Snohomish	Alderwood, Brier
Swamp Creek – King	Northshore
North Creek – Snohomish	Alderwood; Silver Lake
North Creek – King	Bothell
Cross Valley	Cross Valley
Bear Creek – King	Woodinville
East Woodinville	Woodinville
Woodinville – NW	Woodinville
Bothell	Bothell; Woodinville
Kenmore Section 5	Northshore
Inglewood	Northshore
Lake Ballinger – Snohomish	Edmonds; Olympic View; MLT
McAleer & Lyon	LFP; Ronald
Lyon	Edmonds; Brier
Lake Forest – Snohomish	Alderwood; Brier
Lake Forest	LFP; Northshore
Abbreviations: Alderwood = Alderwood Water & Wastewater District; Brier = City of Brier; Bothell = City of Bothell; Cross Valley = Cross Valley Water District; Edmonds = City of Edmonds; MLT = City of Mountlake Terrace; Northshore = Northshore Utility District; Olympic View = Olympic View Water and Sewer District; Ronald = Ronald Wastewater District; Silver Lake = Silver Lake Water District; Woodinville = Woodinville Water District	

King County, Alderwood Water and Wastewater District (Alderwood), and Cross Valley Water District (Cross Valley) operate conveyance pipelines in the region. Table 210-2 outlines the parameters of the County's trunks. The Alderwood and Cross Valley conveyance lines are described in Table 210-3. The pipelines owned by Alderwood and Cross Valley connect to the North Creek Interceptor, Swamp Creek Interceptor, or Lower Bear Creek Trunk.

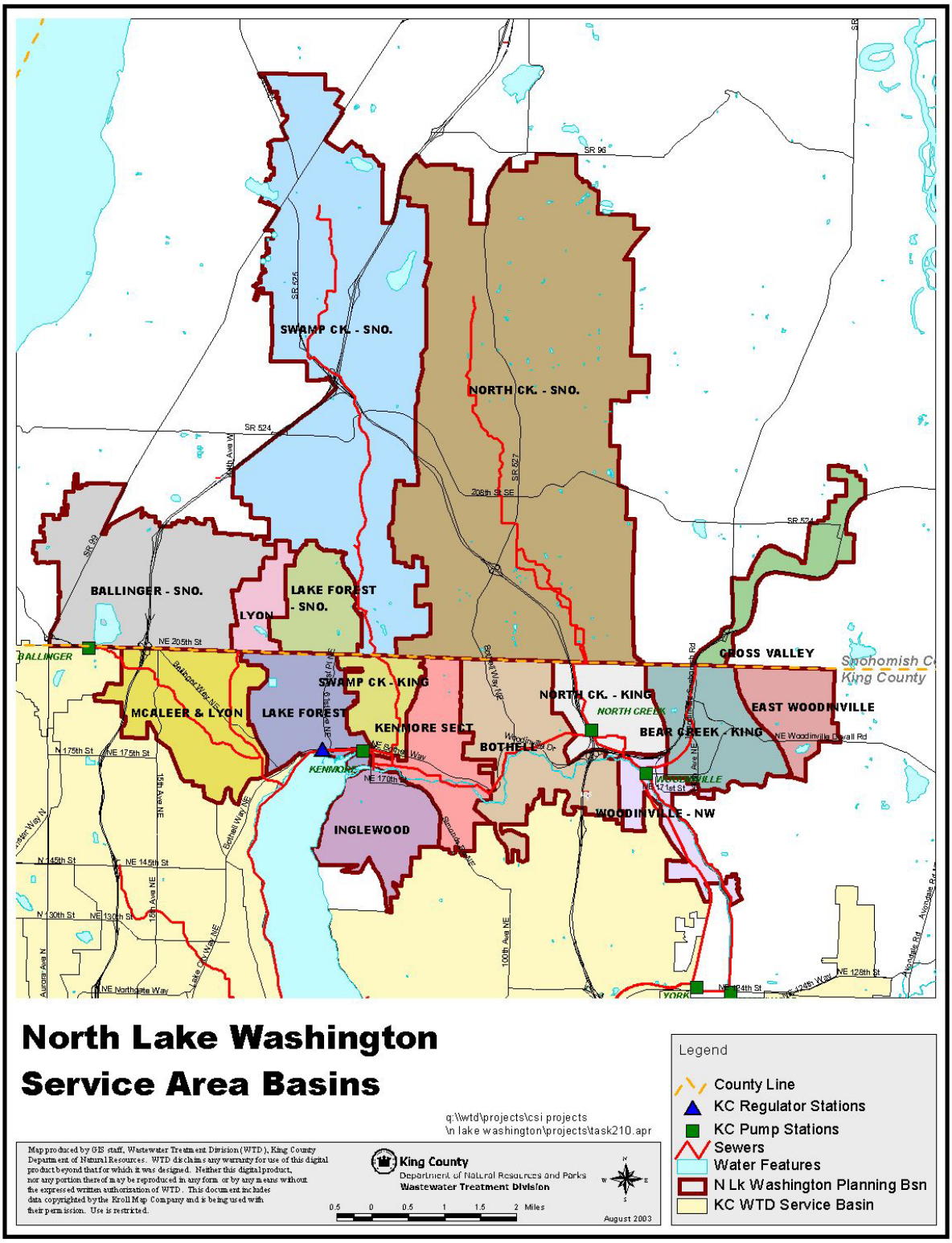

Figure 210-1. North Lake Washington Service Basins

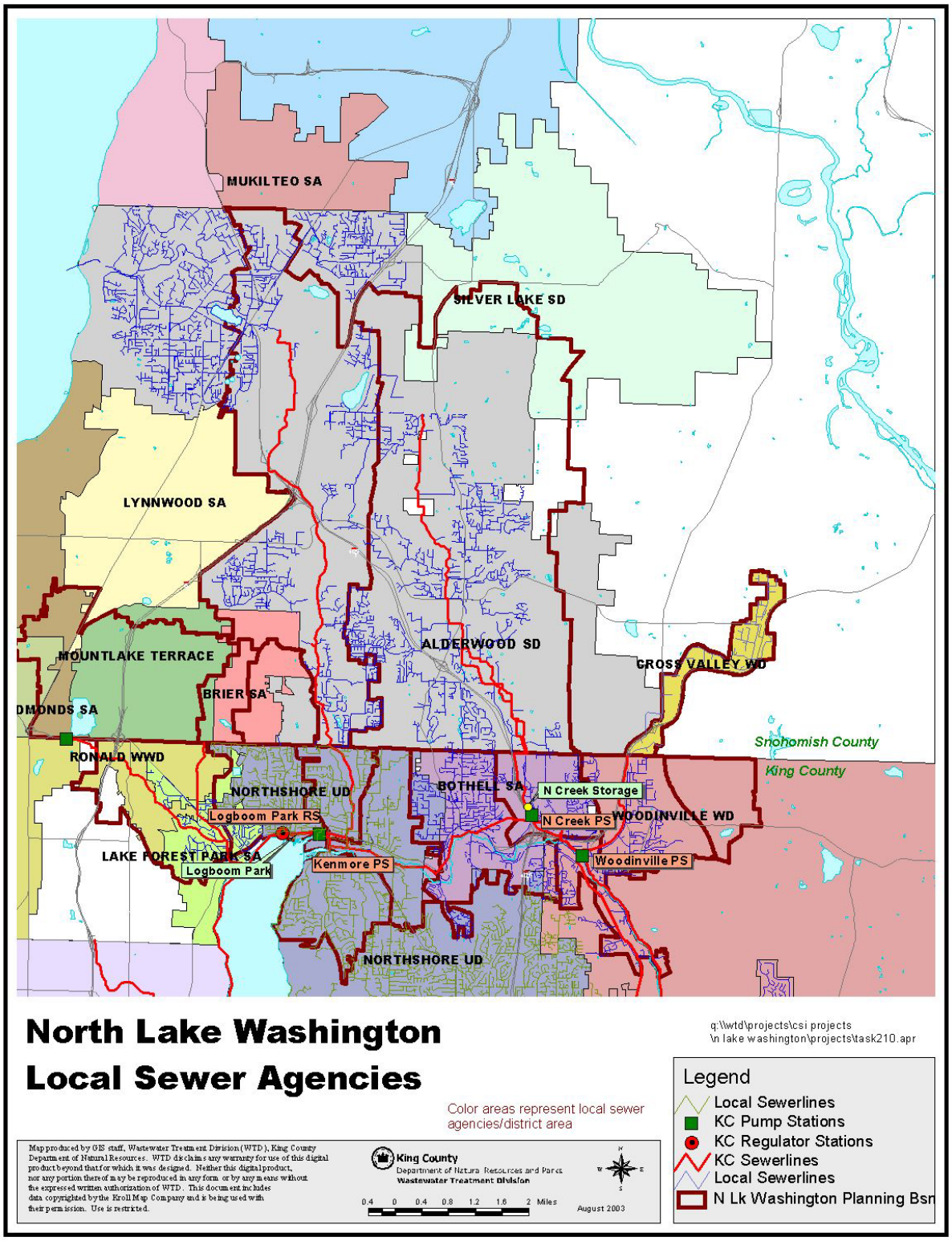

Figure 210-2. Local Sewer Agencies in the North Lake Washington Study Area

Table 210-2. King County Conveyance Line Descriptions

Pipeline	King County Basin Served	Agencies Served	Diameter (in.)	Length (ft.)
Lower Bear Creek Trunk	Bear Creek – King	Alderwood; Cross Valley; Woodinville	30-42	12,422
North Creek Interceptor	North Creek – King North Creek – Interceptor	Alderwood; Bothell; Silver Lake	21-42	41,305
Swamp Creek Interceptor	Swamp Creek – King Swamp Creek – Snohomish	Alderwood; Brier	12-36	48,184
Bothell-Woodinville Interceptor	Bothell	Bothell; Woodinville	30–84	9,942
Kenmore Interceptor Section 5	Kenmore Section 5	Northshore	60-78	16,031
Inglewood Interceptor	Inglewood	Northshore	27	485
Kenmore Interceptor Section 3	Lake Forest Lake Forest - Snohomish	Northshore	42	4,157
Lake Ballinger McAleer Trunk	McAleer/Lyon	MLT; Ronald	24-36	10,732
Lyon Creek Interceptor	McAleer/Lyon	Brier; LFP; MLT	12-24	8,999
McAleer Trunk	McAleer/Lyon	LFP; Ronald	21-24	6,132
McAleer/Lyon Trunk	McAleer/Lyon	LFP	16-36	3,308

Note: See Table 210-1 for abbreviations.

Sources: Wastewater 2020 Plus Conveyance and Treatment, Alternatives Screening and Refinement (HDR Engineering, 1996); Alderwood Water & Wastewater District: Sanitary Sewer Comprehensive Plan, Volume 1 (HDR Engineering, 2000); and Flow Times_North.xls

Table 210-3. Other Conveyance Lines in the North Lake Washington Planning Area

Pipeline	Owner	King County Basin(s) Served	Diameter (in.)	Length (ft.)
Bear Creek Trunk	Alderwood / Cross Valley	Cross Valley	30	5,500
Larch Way Trunk	Alderwood	Swamp Creek – Snohomish	12-36	14,990
Martha Lake Trunk	Alderwood	Swamp Creek – Snohomish	8-12	8,223
Meridian Sewer Trunk	Alderwood	Swamp Creek – Snohomish	12	9,318
Olympus Meadows Trunk	Alderwood	North Creek – Snohomish	12-15	17,686
Penny Creek Trunk	Alderwood	North Creek – Snohomish	15-18	12,395
Queensborough Interceptor	Alderwood	North Creek – Snohomish	10-15	12,274
Source: Alderwood Water & Wastewater District: Sanitary Sewer Comprehensive Plan, Volume 1 (HDR Engineering, 2000).				

PLANNING RECORDS REVIEW

A review was conducted of the historical planning documents for the North Lake Washington Planning Area. This section provides a summary of the work that has been done to provide sanitary sewer service to the region since the formation of Metro in 1958.

Metropolitan Seattle Sewerage and Drainage Survey (1958)

In 1958, the entire North Lake Washington Sewage Area had no public sewer service. The City of Bothell (Bothell) was in the process of designing a local sewer system for its residents.

Predesign Report on First Stage Construction of Comprehensive Sewage Plan (1958)

The projected Kenmore Interceptor was to be completed by 1970 and was to consist of 25,000 feet of 84-inch diameter pipe. Its route would be from the Lake City Pump Station, to

a new pump station at Matthews Beach, and then along the bottom of Lake Washington to Lake Forest Park and the Sammamish River. Only a short section of the interceptor was to be built in the first stage of the Comprehensive Sewage Plan and would serve as an emergency overflow for the Lake City Pump Station. The remainder of the interceptor was to be scheduled to be built after the first stage of construction but before 1970. Preliminary plans had trunk lines extending north from the Kenmore Interceptor after 1970. The trunks would follow Swamp, North, and Bear Creeks north to the King-Snohomish County line.

Later refinements in the planning process resulted in the Kenmore Interceptor and Swamp Creek Trunk being constructed earlier than anticipated, with completion being in 1964, and 1967, respectively. The Kenmore Interceptor was constructed with a diameter of only 48 inches while the King County portion of the Swamp Creek Trunk was constructed with a 36-inch diameter pipe. The Bothell-Woodinville Interceptor, which was part of the Kenmore Interceptor in the 1958 report, was constructed in 1971. The Lower Bear Creek Trunk was completed in 1975, while the North Creek Interceptor was constructed in 1985.

Kenmore Pump Station (1983)

The original Kenmore Pump Station was constructed in 1971, at the same time as the Kenmore Interceptor was being constructed. Design and construction of a larger pump station was completed in March 1986.

Kenmore Interceptor Land Section and Structures (1986)

With increasing development, the Logboom Storage Facility and Logboom Regulator Structures were constructed to provide 4 MG of storage to help prevent wet weather sanitary sewer overflows in the North Lake Washington area.

Cross Valley Water District Sewer System Comprehensive Plan (1992; amended 1994)

In 1992, the Cross Valley service area had no public sewer service. A design for a 30-inch diameter interceptor to provide sewer service to the commercial/industrial areas was proposed in 1994 to address growing concerns regarding failing septic systems and degrading ground and surface water quality. Cross Valley and Alderwood shared in the construction and maintenance costs of the interceptor. The new line, which was completed in 1998, connects to the County's existing 30-inch diameter Lower Bear Creek Trunk near the Snohomish County line.

Shoreline Wastewater Management District Comprehensive Sewer Plan (1990; amended 1995).

The Shoreline Wastewater Management District (which has since changed names to the Ronald Wastewater District) provides wastewater services to the City of Shoreline and portions of the City of Lake Forest Park. The district is divided into three basins (Richmond Beach, Edmonds, and West Point) that correspond to the treatment plant where flows would be conveyed to and treated. Ronald had no plans to construct any new sewers within its service area; all future sewer construction would be from funded developer extension contracts. The only work by Ronald within the North Lake Washington Planning Area was the reconstruction of a sewer pipe bridge and an upgrade of one lift station. Both projects have since been completed.

The major capital improvements described in this comprehensive plan were regarding the upcoming (at the time) Edmonds Flow Transfer and the decommissioning of the County's Richmond Beach Treatment Plant. Discussion regarding the flow transfer is located in the Regional Wastewater Service Plan Coordination Issues section of this report.

City of Bothell Sanitary Sewer System Plan (1993; supplemented 1994)

Bothell's system does not extend beyond the city limits. The original collection trunk was built in 1960 and has since expanded to its current configuration. The system connects to King County's Bothell-Woodinville Interceptor at nine locations. Alderwood currently provides sewer service to the portion of Bothell within Snohomish County. In this plan, Bothell indicates that the city will extend facilities to this area. In addition, Bothell is participating in Inflow/Infiltration (I/I) studies as part of the King County I/I program.

By 1994, Bothell was in the second year of a five-year Capital Improvement Program to reduce I/I and expand the service area. One of Bothell's seven lift stations had been permanently removed and six percent of Bothell's 274,914 LF of sewers had been replaced.

Woodinville Water District Comprehensive Sewer Plan (1993)

The Woodinville Water District (Woodinville) has approximately 60 miles of sewers ranging from 8 inches to 18 inches in diameter, and a single pump station. The system is linked to King County's Sammamish Valley Interceptor and Lower Bear Creek Trunk at 13 locations. Woodinville initiated an I/I monitoring program in 1992.

In 1993, six projects were initiated and 11 projects were proposed to replace existing lines or to expand Woodinville's service area eastward. To handle future flows in expanded service area, 38,330 LF of new sewer extensions and two submersible pump stations were built.

Wastewater 2020 Plus – Existing Conditions (1994)

The 1994 report stated that without further diversion of flow from the Kenmore Lakeline, the Kenmore Lakeline capacity to convey a 20-year peak flow would be exceeded by 1996 due to increasing urbanization and the resulting increased flow to the County's conveyance system. The County developed a flow diversion plan that moved flow away from the Kenmore Lakeline, added upstream flow storage, and provided a seasonal flow management approach until system-wide improvements were in place.

Wastewater 2020 Plus – Conveyance and Treatment Alternatives Screening and Refinement (1996)

One alternative listed in the report was the construction of a new treatment plant in northern King County or southern Snohomish County to address the capacity limitations of the Kenmore Lakeline and to treat flow in excess of the capacities of West Point and an expanded South Plant in Renton. The new North Plant was to have an initial capacity of 35 mgd and would increase to 89 mgd by 2030. All northern service area flows were to be diverted to the new plant.

North Creek Diversion Project: North Creek Pumping Station (1997)

The 36 mgd capacity North Creek Pump Station was constructed to divert flows from the North Creek Interceptor, Lower Bear Creek Trunk, and a portion of the Bothell-Woodinville Interceptor to the York Pump Station and Eastside Interceptor during the wet weather season. The diversion was implemented as part of plan outlined in the Wastewater 2020 Plus to reduce peak flows through the Kenmore Lakeline and to maintain the King County design standard capacity to convey a 20-year peak flow event.

Swamp Creek Planning Study (1997)

The Snohomish County portion of the Swamp Creek Trunk, which belonged to Alderwood at the time, terminated at the King/Snohomish County line. At this point, the 36-inch diameter trunk connected to a 21-inch Northshore Utility District (Northshore) local sewer pipe to convey wastewater to the County's Swamp Creek Trunk. Northshore had advised King County that flows in the 21-inch local sewer pipe were nearing the capacity of the pipe. King County was obligated to construct a sewer extension connecting from the upper terminus of the King County Swamp Creek Trunk per an agreement between the County, Brier, and Alderwood.

The extension was constructed in 2000 and followed the 73rd Avenue NE and NE 204th Street right-of-ways. The Swamp Creek Trunk Extension was 4,395 feet of 36-inch and 72-inch diameter pipes installed with a combination of open-cut and jack and bore construction methods.

Silver Lake Water District Wastewater Comprehensive Plan Update (1998)

The Silver Lake Water District (Silver Lake) encompasses the northern sections of King County's North Creek – Snohomish and Bear Creek – Snohomish Service Basins. Approximately 20 percent of Silver Lake's wastewater is conveyed through Alderwood's sewer system for treatment at the County's facilities. The remaining wastewater is conveyed to the Everett Water Pollution Control Facility for processing. The region where flow is sent to Alderwood comprises about 600 acres of Silver Lake's west and southwest service area.

City of Lake Forest Park Comprehensive Sanitary Sewer Plan (1999)

The City of Lake Forest Park (LFP) provides sewer service to only the central portion of the area within LFP's municipal boundaries. The remainder of LFP receives wastewater service from Northshore, Ronald, and Seattle Public Utilities (SPU) (the area served by SPU is outside of the North Lake Washington Planning Area).

LFP planned to construct a new 8,000-foot long, 3-inch diameter low-pressure sewer system and a new 4,850-foot long, 8-inch gravity sewer by 2003 (both of which have been completed at this time). Both developer-funded projects provided sewer service to undeveloped areas and areas currently served by on-site septic systems. After 2003, LPF had several other developer-funded projects to construct new pressure sewer and gravity sewer lines to undeveloped areas and/or areas currently served by septic systems.

Regional Wastewater Services Plan (1999)

The Regional Wastewater Services Plan (RWSP) includes the need, as described in the Wastewater 2020 Plus report, to construct a third regional wastewater treatment plant somewhere in the north King County/south Snohomish County area by 2010. The initial planned capacity was increased from 18 mgd average wet weather flow (AWWF) to 36 mgd. The maximum plant capacity was reduced from 89 mgd (as described in the Wastewater 2020 Plus report) to 54 mgd and delayed from 2030 to 2040.

The RWSP proposed the construction of a new 10-MG underground storage facility that could also serve as a conveyance tunnel. The facility, called the North Lake Interceptor (NLI), was to be a 16-foot diameter, 8,000 feet long tunnel that would have connected to the McAleer/Lyon Trunk and the Kenmore Interceptor and Logboom Park Regulator Station. When the North Treatment Plant was completed, the tunnel was to also serve to convey McAleer/Lyon flow and other north end flows to the plant. The NLI was scheduled to be completed in 2006. This project has subsequently been eliminated with the development of the Brightwater Treatment System.

North Creek Storage Facility Design Criteria Development (1999)

King County planned to site up to a 10-MG underground storage facility near the North Creek Pump Station in Bothell. The storage facility was proposed in the 1999 RWSP to help further reduce the peak flow into the conveyance system, especially the Kenmore Lakeline during a 20-year flow event. The new North Creek Storage Facility was constructed with a capacity of 6 MG and became operational in 2003.

Northshore Utility District 2000 Wastewater Comprehensive Plan, Volume One: System Analysis and Capital Improvements (2000)

Northshore receives wastewater from Alderwood, which it conveys through its system to the Swamp Creek Trunk. In addition, Northshore serves four areas within Alderwood. Northshore also serves sections of Bothell and Woodinville. Northshore estimates that approximately 19,000 LF of its older pipes would need to be replaced annually to steadily reduce I/I in their system.

Alderwood Water & Wastewater District Sanitary Sewer Comprehensive Plan, Volumes 1 & 2 (2000)

The Alderwood system is divided into five primary drainage basins: Picnic Point, South Everett, Swamp Creek, North Creek, and Bear Creek. Wastewater from sewered areas of the Swamp Creek, North Creek, and Bear Creek Service Basins is conveyed to the King County system. These three basins are analogous to the County's Swamp Creek – Snohomish, North Creek – Snohomish, and Bear Creek – Snohomish Service Basins. Alderwood provides the majority of the wastewater service to the Swamp and North Creek basins. Service to the Bear Creek basin is provided only to the 125-acre Maltby Urban Growth Area. Wastewater from the other two Alderwood basins is conveyed to either Alderwood's Picnic Point Treatment Plant or to the Everett Water Pollution Control Facility for treatment.

As part of the 1999 RWSP, the County implemented a policy to achieve uniform financing, operation, maintenance and replacement of all conveyance facilities in its service area, including the areas within Snohomish and Pierce Counties. As a result of this policy, Alderwood transferred ownership of the District's Swamp Creek Trunk and North Creek Interceptors to the County since both pipelines provide conveyance services to basins larger than 1,000 acres. Figure 210-3 shows the portions of the Alderwood pipelines that were purchased.

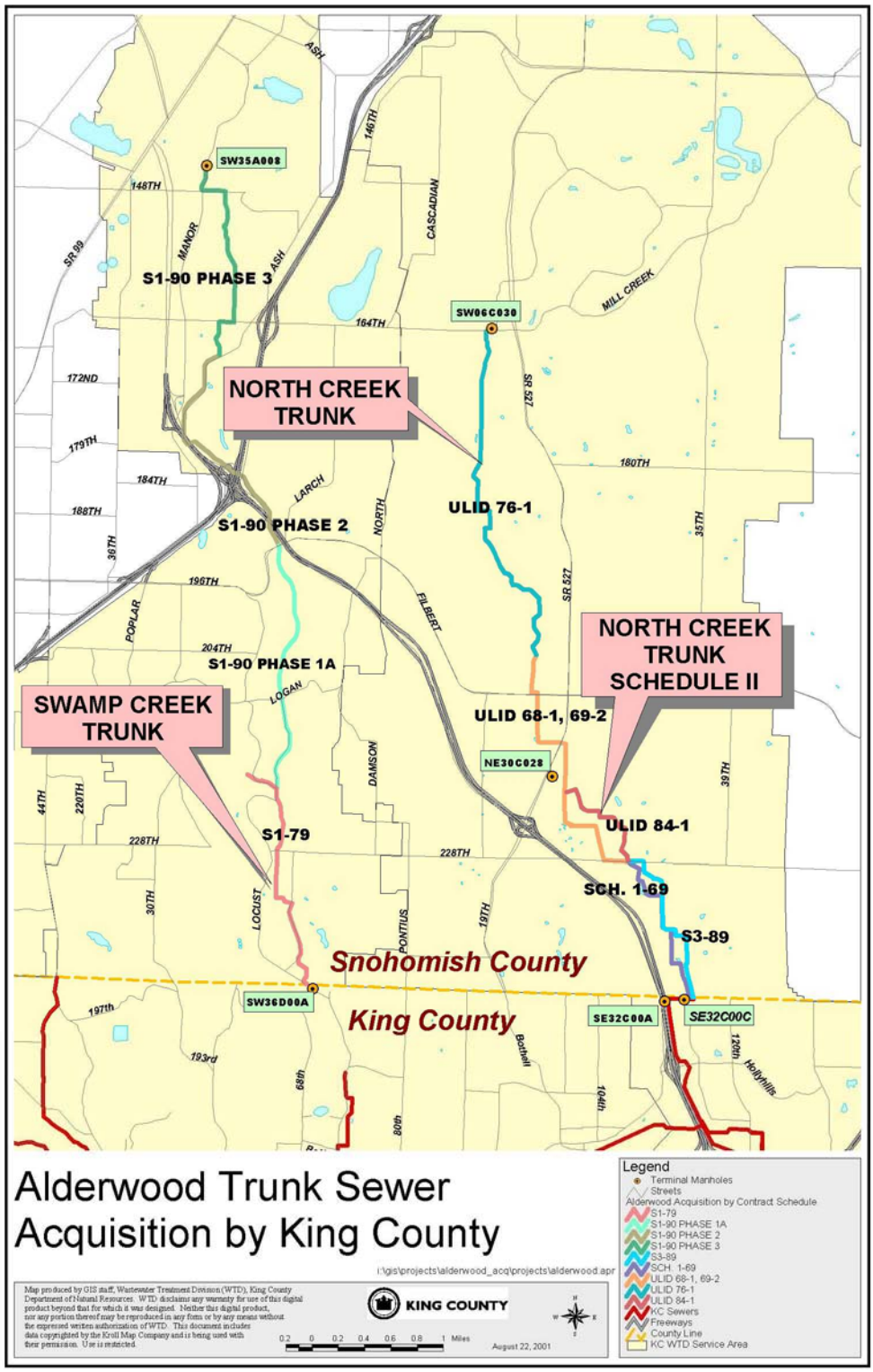

Figure 210-3. Sewers Acquired by King County

Swamp Creek Trunk Sections S1-70 and S1-90 Phases 1A, 2 and 3 were transferred to the County. The southern terminus of the Swamp Creek transfer is at manhole SW36D00A on Locust Way SE, immediately south of the King/Snohomish County Line. The northern terminus is manhole SW35A008 on Manor Way, north of 148th Street SW. For the North Creek Interceptor, King County obtained Sections Schedule 1-69, S3-89, ULID 84-1, ULID 68-1, ULID 69-2, and ULID 76-1. Manholes SE32C00A and SE32C00C along the King/Snohomish County Line are the southern termini of the transfer while manhole SW06C030 near the intersection of 164th Street SE and Mill Creek Boulevard is the northern terminus.

City of Brier Draft Comprehensive Sanitary Sewer Plan (2000)

Ten of the City of Brier (Brier) service area's twelve basins are located in the County's Lake Forest – Snohomish, Lyon, and Edmonds East Service Basins and lie outside of the North Lake Washington Planning Area. The remaining two basins flow into the Alderwood conveyance system. The Alderwood Larch Way Trunk provides wastewater conveyance to the 330-acre Brierwood Sewer Basin in the northeast corner of the Brier service area. Alderwood designates this area as the Brier Tributary Area in its Sanitary Sewer Comprehensive Plan. The 50-acre Crestview Sewer Basin, called the Brier Northshore Transfer Area by Alderwood, flows into a local Alderwood sewer at the manhole at 25th Avenue W.

City of Lake Forest Park Resolution 754 and Ordinances 889 and 891 (2002)

On January 1, 2003, LFP assumed ownership and maintenance of two pump stations and 39 miles of sewer pipe from Ronald. These facilities are in the area previously served by Ronald and SPU. The service area transfer came about because SPU sold the service area outside of the Seattle city limits to Ronald. The transfer from SPU to Ronald took place with the understanding that the portion of Ronald that was within the LFP city boundaries would be transferred to LFP. As part of the transfer, LFP is evaluating all the sewers in the newly acquired system for potential I/I reduction.

Final Environmental Impact Statement: Brightwater Regional Wastewater Treatment System (2003)

The location of the third treatment plant described in the RWSP, now designated as Brightwater, has been identified as either a location adjacent to State Route 9 in unincorporated Snohomish County (the Route 9 site) or the Unocal property within the City of Edmonds (Unocal site). The Route 9 treatment plant site had one alignment to convey wastewater to the treatment plant but two effluent alignment alternatives, one alignment generally along NE 195th Street and NE 205th Street while a second alignment generally along SE 228th Street and NE 205th Street. The Unocal site had one influent alignment and did not have an effluent alignment as the plant discharged directly to Puget Sound. Since the

publication of the Final EIS, the Executive has selected the Route 9-195th Street System as the system to be constructed.

The Route 9–195th Street conveyance system would consist of an influent pipeline to a treatment plant built at the Route 9 site and an effluent pipeline to an outfall off of Point Wells near the King/Snohomish County Line. Figure 210-4 shows the Route 9-195th Street System in relations to the North Lake Washington Planning Area. Initially, the Brightwater Treatment Plant would have a capacity of 36 AWWF and 130 mgd peak hydraulic capacity. The entire system is anticipated to be operational in 2010. In 2040, the new treatment plant will be expanded to 54 mgd AWWF, 170 mgd peak facility.

The new influent pipeline will divert flows from many of the existing County pipelines in the North Lake Washington Planning Area. Specifically, flow diversions into the influent pipeline would occur along the Swamp Creek Trunk, at the Kenmore Pump Station, and in the vicinity of the North Creek Pump Station and the North Creek Storage Facility. Additional discussion regarding the impacts of the Brightwater Regional Wastewater Treatment System on the existing pipelines in the North Lake Washington Planning Area is included in the next section.

Figure 210-4. Brightwater Treatment System

REGIONAL WASTEWATER SERVICES PLAN COORDINATION ISSUES

EDMONDS FLOW TRANSFER

The City of Edmonds (Edmonds) and King County have an interlocal agreement to transfer wastewater flows between systems. This agreement was first concluded in July 1988, amended in March 1993 and again in October 2000. The transfer agreement will remain in effect through July 1, 2036. A portion of the Town of Woodway and portions of the City of Shoreline area (served by the Ronald Wastewater District) are pumped through King County's Richmond Beach Pump Station and forcemains to Edmonds, and Edmonds treats it for King County. The area of this flow transfer is shown in Figure 250-5. Flows from King County's Richmond Beach Pump Station to Edmonds are approximately an average of 2 mgd. The maximum pumping capacity of Richmond Beach Pump Station is 10.7 mgd. In exchange, King County pumps a portion of the flow from the Lake Ballinger Pump Station into the McAleer Trunk and whereupon it flows to the West Point Treatment Plant for processing. The Lake Ballinger Pump Station, owned and operated by King County, pumps flows received from areas of Edmonds, Mountlake Terrace, Olympic View Water and Sewer District and the Ronald Wastewater District. The station has a capacity to pump up to 7 mgd to Edmonds and 9.8 mgd to the McAleer Trunk; generally, the facility pumps about 2 to 3 mgd on average.

Through January 1, 2012, during the wet weather season, all flows from the Lake Ballinger Pump Station are pumped to Edmonds. However, during extreme storms, flows that exceed the station's 7 mgd capacity to pump to Edmonds are sent to the West Point Treatment Plant for treatment. During the dry half of the year, the pump station sends a portion of the flow entering station to the McAleer Trunk and West Point Treatment Plant to match the amount of flow the Edmonds Treatment Plant receives from the Richmond Beach Pump Station. Typically, the balance of the flow pumped at the Lake Ballinger Pump Station, approximately 1 mgd, is pumped to Edmonds regardless of time of year. At present, King County treats about 2 mgd of Lake Ballinger – Snohomish flows at the West Point Treatment Plant during dry weather periods. After 2012, King County will convey and treat the flows all year according to this agreement. The underlying financial intent of the agreement is that King County and Edmonds would each be treating the same volume of flow so the agreement is revenue/cost neutral when equivalent flows are treated.

Edmonds has an interlocal agreement with Mountlake Terrace, Olympic View Water and Sewer District and the Ronald Wastewater District that provides these agencies a contractual right to capacity at the Edmonds treatment plant. These agencies paid for the construction of the plant through their own financing. Annual treatment plant operations and maintenance costs, as well as capital expenses, are shared between the participants proportionate to the capacity purchased. King County has no agreements with Mountlake Terrace or Olympic View Water and Sewer District. The conveyance and treatment of wastewater from these

two agencies are governed by their respective interlocal agreements with Edmonds, which in turn, entered into the separate Edmonds Transfer Agreement with King County. The Town of Woodway is located outside of the North Lake Washington Planning Area. Discussion regarding the agreement between the town and King County can be found in the CSI reports for the Northwest Lake Washington Planning Area.

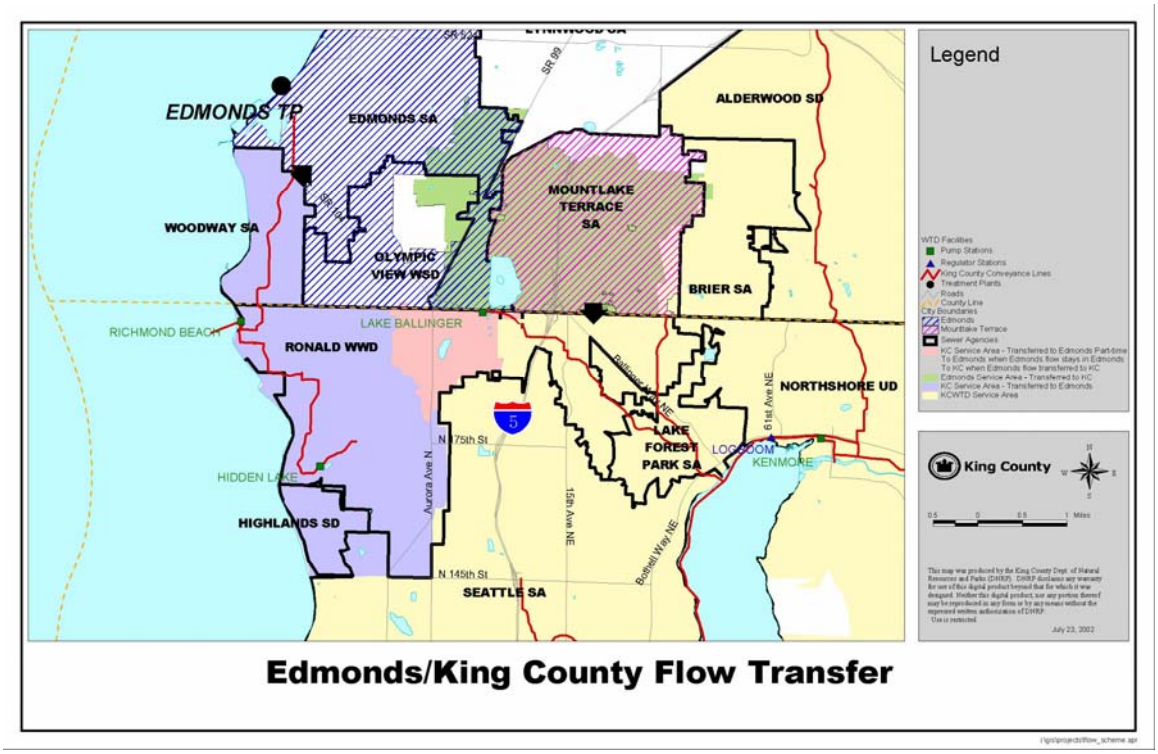

Figure 250-5. Edmonds/King County Flow Transfer

BRIGHTWATER REGIONAL WASTEWATER TREATMENT SYSTEM

The Brightwater Treatment Plant will require a new conveyance system to send wastewater to the Route 9 site as well as an effluent conveyance system to send the treated wastewater to a new outfall beginning at Point Wells on the shoreline of Puget Sound, near the King-Snohomish County Line. The new Brightwater Conveyance System is contained within an easement/right-of-way corridor generally located along NE 195th Street and NE 205th Street. The influent and effluent corridors are aligned through areas within or adjacent to the cities of Woodinville, Bothell, Kenmore, Lake Forest Park, Shoreline, the Town of Woodway, and unincorporated areas of King and Snohomish Counties.

The conveyance system influent and effluent pipelines will be constructed within tunnels. Depending on the location, influent or effluent pipelines will be placed within the tunnels or the inside of the tunnel structure itself will serve as the conveyance pipe. Portals (consisting

of vertical shafts) will provide access from the ground surface for launching and retrieving the tunneling equipment and for installing pipes, as well as provide long-term access to the tunnels, pipes, and other facilities for inspection and maintenance.

The conveyance system is comprised of the following primary components:

- Influent tunnel containing pipeline and force mains for conveying untreated wastewater to the plant
- Kenmore Diversion Structure and odor control facility to divert and measure flow from the Kenmore Interceptor into the influent tunnel at the South Kenmore Portal
- Swamp Creek Connection Diversion Structure to divert and measure flow from the Swamp Creek Trunk into the influent tunnel at the North Kenmore Portal
- Influent system Safety Relief Facility to the Sammamish River in Kenmore
- North Creek Connection and influent micro tunnel to convey flows from the North Creek Pump Station area to the North Creek Portal
- Influent pump station (IPS) and odor control facility at the North Creek Portal to lift the wastewater to the Route 9 treatment plant site
- Dechlorination and sampling station at the Point Wells Portal
- Effluent pipelines/tunnel for carrying treated wastewater from the plant to the outfall
- Odor control facility at the Ballinger Way Portal
- Outfall to Puget Sound at the Point Wells Portal
- Five primary portals (not including one at the Route 9 treatment plant site) for tunneling construction and long-term access

The influent conveyance system would consist of primarily large-diameter pipelines constructed by tunneling. A relatively short pipeline connecting to the existing County system between the North Creek Pump Station and the North Creek Portal would be constructed by microtunneling methods. Open-cut construction and/or microtunneling would also be used to connect the existing wastewater system to the new influent tunnel at North and South Kenmore Portals. The route of the influent conveyance alignment generally follows 68th Avenue NE to NE 195th Street, and then turns east on NE 195th Street to the North Kenmore Portal. The alignment then runs east along NE 195th Street through the North Creek Business Park (North Creek Portal) to SR-522, and then north along SR-522 to the Route 9 site (see Figure 210-4).

The conveyance system would combine the influent and effluent pipelines in one larger-diameter tunnel along NE 195th Street and SR-522, between the North Creek Portal and the

Route 9 site. The total length of the influent tunnel alignment is 8.1 miles, including 1.8 miles of local influent connection pipelines and 4.8 miles of combined tunnel section (which includes both influent and effluent pipelines). The actual length of the local connections depends on the final location of the portal sites.

Several local connections would be made to the existing sewer system to direct flows to the Route 9 site via the conveyance system. Local connections are generally less than 1/2 mile long and would be between 21 and 72 inches in diameter. The preferred construction methods for these local connections are open-cut and/or microtunnel. Connections would be made to the following existing facilities:

- Kenmore Pump Station (South Kenmore Portal)
- Kenmore Local Sewer System (when necessary for flow management) (South Kenmore Portal)
- Swamp Creek Trunk (South Kenmore Portal)
- North Creek Pump Station (North Creek Portal)

The basins that would be diverted at each of these connections are listed in Table 210-4.

As a result of the flow diversions, the Kenmore and North Creek Pump Stations would be reduced from active use to a standby role for flow diversions to either the West Point or South Treatment Plants. In addition, the Bothell-Woodinville and Kenmore Interceptors would convey reduced flows. The reduction increases the free space (space not filled with wastewater) in the interceptors and would allow the pipelines to be used as on-line storage facilities with an estimated capacity of 2 MG.

The effluent pipeline is not anticipated to have an impact on the existing County conveyance system in the North Lake Washington Planning Area. However, the Brightwater Treatment Plant will be capable of producing Class A reclaimed water. One alternative being considered for water reuse would involve conveying reclaimed water from the treatment plant site to the North Creek Pump Station. The pump station would then pump the reclaimed water in one of the facility's two existing forcemains to the York Pump Station for final chlorination and distribution. The North Creek Pump Station may need to be modified to have the disinfection equipment to allow the facility to pump both untreated wastewater and reclaimed water.

Table 210-4. North Lake Washington Planning Area Service Basins Diverted by the Brightwater System

Basins Diverted At:		
South Kenmore Portal	**North Kenmore Portal**	**North Creek Portal**
Bothell	Swamp Creek – Snohomish	Woodinville – NW
Kenmore Section 5	Northern portion of Swamp Creek – King	East Woodinville
Southern portion of Swamp Creek – King		Woodinville
Inglewood		Bear Creek – King
Lake Forest – Snohomish[1]		Cross Valley
Lake Forest[1]		North Creek – Snohomish
		North Creek – King

Notes
[1]: Lake Forest and Lake Forest-Snohomish Service Basins would be diverted to Brightwater in 2040.